

The claims are rejected as obvious over several references that describe polypeptide products that are produced in which one of the steps in production is oxidation of a keratin containing material such as animal hair, wool, hooves, feathers or human hair.

Applicant submits that each of these references, and particularly the primary references, U.S. Pat. Nos. 4,495,173 ('173), and 5,276,138 ('138), describe a composition containing α -keratose. α -keratose is an acidic portion of the keratin proteins that is insoluble at low pH. Thus, in the description in these patents, the precipitate is formed in low pH, not in a solvent such as methanol or ethanol as shown below:

an oxidized decomposition product of wool keratin was admixed with 2N hydrochloric acid to adjust pH to 4.0 whereupon α -keratose was settled as a precipitate ('173) at column 9, lines 21-25

Gelled precipitate prepared by adding an acid such as acetic acid and the like to the keratin solution can be used as an adsorbent for metal ions. Powder prepared by treating said gelled precipitate with a polar solvent such as alcohols, acetone and the like can be utilized not only as a blending ingredient for a cosmetic but also as a blending component for various industrial treating agents such as paints and the like . . . ('138) column 4, lines 17-24

As previously stated, the present invention relates also to the process for recovering the solubilized product of the animal hairs which comprises admixing the solution of said product with an organic acid or an aqueous solution thereof to precipitate said product. ('138) column 4, lines 29-33

Although the '138 patent discusses the use of a polar solvent such as alcohols, acetone and the like, this step is used to further purify the α -keratose that was the result of a previous acid precipitation. As shown in Figure 1 of the '138 patent, this α -keratose contains high molecular weight peptides of around 60 kilodaltons median molecular weight.

The '583 patent also appears to describe only higher molecular weight products. For example, the first paragraph in Column 2 states that it is an objective of the invention to

"maintain the molecular weight and the α -helix structure of the keratin protein." In addition, at Column 4, line 30, the molecular weight is shown to be 40,000 to 60,000, thus clearly distinguishing this composition from that of the present claims.

Thus the process steps are shown to be different than those of the instant claims, and the product of those steps is distinguished at least by the relative molecular weights.

The remaining cited references are not drawn to the peptide compositions, *per se*, but rather describe various claim elements such as hydrogels, sheets and tissue scaffolding, etc.

In regard to the FR '381 reference, Applicants submit that no molecular weight appears to be described for the keratin hydrolysate and neither is any activity presented for keratin derivatives. Therefore, this reference cannot teach or suggest the claimed invention.

As discussed above, U.S. patents '173, '138, and '583 do not teach or suggest the claimed invention. Neither do the secondary references teach or suggest the claimed invention. Applicant submits, therefore, that the claims are in condition for allowance. Such favorable action is respectfully requested. If the Examiner has any questions or suggestions that would help progress the claims toward allowance, a telephone call to the undersigned representative at 512-542-8446 is urged.

Respectfully submitted,

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MARKED UP COPY OF THE AMENDMENTS

55. (Amended) A composition comprising water soluble peptides, wherein said peptides are obtained by:

oxidizing human or animal hair, human or animal nails, fur, hooves, or feathers, in an aqueous oxidizing solution;

filtering said aqueous oxidizing solution to obtain a water soluble portion;

substantially neutralizing said water soluble portion; and

adding a water-miscible organic solvent to said water soluble portion, such that a precipitate is formed;

wherein said precipitate comprises water soluble peptides;

and further wherein at least about 90% of said water soluble peptides are between about 300 and about 1300 daltons in molecular weight.